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ABSTRACT

This publication presents approved guidelines for Texas institutions of higher and postsecondary education in the academic preparation of practitioners in the field of fitness for health. Developed in response to the rapid growth of this field, the guidelines identify and recommend the knowledge and expertise required in career preparation, and identify and recommend the minimum subject content, curriculum guidelines, and terminal competencies. At the associate degree level, the following competencies are described: functional anatomy and biomechanics, exercise physiology, human development/aging, human behavior/psychology, pathophysiology/risk factors, health appraisal and fitness testing, emergency procedures/safety, exercise instruction and programming, and nutrition and weight management. At the baccalaureate degree level, the same general competency areas are included, though with more complex specific competencies, and the areas of program administration/business management, electrocardiography, and legal and ethical issues are added. The section on master's degree level competencies provides guidelines for all the areas included in the baccalaureate degree section, with increasingly sophisticated specific competencies. A table shows recommended resources for establishing fitness for health programs. (JB)

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GUIDELINES FOR FITNESS FOR HEALTH PROGRAMS IN TEXAS

Approved

Texas Higher Education Coordinating Board

1981

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Approved

Texas Higher Education Coordinating Board

1991

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Introduction

Over the past decade the fitness and health promotion industry has grown in geometric scale. The demand for qualified professionals to manage and staff health promotion and fitness programs and facilities has grown as well. In an age of increased awareness of preventive medicine and the public's recognition for the need to develop positive lifestyle habits, the fitness for health specialist must have the professional preparation to effectively provide information to the public. Consequently, considerable attention has been focused on the academic preparation of these practitioners.

The academic preparation for individuals entering the field of wellness, fitness for health requires a multi-disciplinary approach. This field of study, as with so many other health professions, has no uniquely defined body of knowledge. Rather, the field draws knowledge from a variety of disciplines including anatomy, biomechanics, human growth and development, nutrition, physiology, exercise physiology, psychology, community health, and education. The student, though not required to have specific expertise in each of these fields, is expected to have a working understanding of each of these areas and to be able to adapt this knowledge to meet the health promotion needs of the community.

Texas, as in practically every state in the nation, is faced with the growing problem of how to deal with the professional preparation of students entering the field of fitness for health. To meet the growing demand for practitioners, many schools are starting training programs in this area. Because much of the curricula is derived from the department of physical and health education, it is a natural extension for many of these departments to develop an alternative, non-teaching certification track in wellness, fitness for health. However, with greater emphasis being placed on the behavioral aspects of these training programs, other departments, such as psychology, sociology, nutrition, and nursing are including wellness and health promotion as tracks within their departments. These departments typically do not include physical fitness as an integral part of their curricula.

While most professional preparation programs in fitness for health are baccalaureate and graduate programs, many community colleges have developed degree plans with majors in exercise and health technology. Graduates from these associate degree programs are employed primarily in health clubs, fitness centers, and hospital settings. These community college programs serve not only to provide terminal degrees for individuals who do not intend to continue their education, but may serve as the initial step in a career ladder and provide an avenue for educational mobility for those wishing to continue into university programs.

Problems may occur when colleges and universities alter their curricula to become a part of the rapidly emerging fitness and wellness movement. In some instances the schools lack the faculty interest, the facilities, the multi-disciplinary coursework, and the intern experiences essential to adequately prepare the students for careers in a field requiring such a broad perspective. Programs that do not provide these experiences are a disservice to the student. Currently, there are no state or nationally recognized standards to ensure the quality of these professional preparation programs. Two national professional organizations, the American College of Sports Medicine (ACSM) and the National Association of Sport and Physical Education (NASPE), an affiliate of the American Alliance of Health, Physical Education, Recreation, and Dance, have recommended generic academic areas to include in the professional preparation programs. The American College of Sports Medicine offers six categories of certification for individuals dependent on education and professional experience. There are no professional organizations that serve as institutional accrediting agents, although NASPE is considering an accreditation process for member schools. Acceptance of this accreditation process will, of course, take time.

Although there is universal concern for the academic quality of the professional preparation programs in the area of wellness, fitness for health, there are currently no states that regulate these programs. The Texas Higher Education Coordinating Board, because of its oversight position for the

state's 39 senior colleges and 49 community colleges, is in a position to establish standards to insure the highest quality of professional preparation for the students of Texas. The Coordinating Board's Health Professions Education Advisory Committee, a seventeen member committee of health professionals appointed by the Commissioner of Higher Education to advise him on issues relating to health education, appointed a 14-member advisory committee to study this issue and to make recommendations. The advisory committee was composed of representatives from community colleges, universities, schools of allied health, as well as individuals from industry and medicine. The advisory committee was charged to make specific recommendations concerning the curricula, the faculty and facilities, and terminal competencies expected of graduates from associate, baccalaureate, and graduate programs. In addition, the advisory committee was asked to identify avenues for career and professional mobility for graduates of these programs.

The advisory committee chose not to recommend specific courses to include in the curriculum since each school has its own areas of expertise. Instead the advisory committee recommended terminal competencies expected of graduates at the associate, baccalaureate, and masters levels. Doctoral programs were not included since there were so few doctoral programs in the state. The competency-based curricula is performance oriented and requires the graduate to demonstrate the described ability. While content is an important aspect of the curriculum, the competency-based curriculum requires the ability to apply specific skills in dealing with a defined subject matter.

The specific competencies are broadly defined skills that a qualified entry-level graduate, from an associate, baccalaureate, or masters program would be expected to be able to demonstrate at a minimal level of competency. There is a hierarchy of knowledge and understanding required in progressing across levels. The "action verbs" describing the competency have been selected to reflect the knowledge base expected at each level. For example, at the associate level, the verbs "define," "identify," and "list" are used indicating an introductory knowledge of the information. At the baccalaureate level, verbs such as "demonstrate," "describe," "calculate," and "plot," are used implying the graduate must be able to deal with a knowledge base on a more sophisticated level. The masters level graduate must "discuss," "explain," "differentiate," "compare," and "teach" indicating a need to interact with another person and to possess a greater level of sophistication. While it is recognized that individuals at all levels perform tasks requiring sophisticated skills, the intent is to develop the minimal terminal competencies for each level, and the knowledge developed at one level becomes the foundation for the next higher level.

The terminal competencies were derived, in large part, from the Guidelines for Exercise Testing and Prescription, (fourth edition), published by the American College of Sports Medicine. The advisory committee selected these behavioral objectives as the framework for the current document because the ACSM Guidelines were developed by a panel of national experts and a review panel of these experts update the competencies periodically. Thus the Texas document remains an evolving document that will change as new knowledge and innovations in the field are developed.

Charge to the Task Force

- Identify the careers and the markets available in fitness for health.
- Identify and recommend the knowledge and expertise required in the professional preparation for careers in fitness for health.
- Identify and recommend the minimum subject content, curriculum guidelines, and terminal competencies for the associate of arts, baccalaureate, and masters degrees with majors in fitness for health.
- Identify the market demand for graduates of different levels of academic preparation in fitness for health.
- Outline career ladders and avenues of professional mobility for graduates in fitness for health.
- Suggest a standard nomenclature for fitness for health.
- Identify credentialing, accreditation, and continuing education organizations for each level of academic preparation for careers in fitness for health.

Fitness for Health Professional
Associate Degree Level

Description

The Associate Degree Level Fitness For Health Professional would conduct exercise programs for people who are apparently healthy. This professional would possess the knowledge, competence and skills necessary to conduct safe and valid, exercise-related physical activities under appropriate direction. These activities would include graded exercise testing (GXT); resting ECG; pulmonary function tests; and oxygen uptake consistent with the individual's age and health status. This professional would possess the knowledge, competence and skills necessary to conduct physical fitness instruction independent of supervision.

An Associate Degree Level Fitness For Health Professional must meet the following criteria:

1. Identify scientific principles of conditioning and motivation techniques for establishing an appropriate lifestyle that includes healthy exercise habits.
2. Identify activities that will improve the participant's level of fitness. Positive attitudes toward work and play, as well as positive physical or psychological benefits, are the desired outcomes.
3. Identify the physiological and psychological effects of regular exercise and identify suitable and innovative activities for each individual.
4. Identify risk factors, motivation, counseling, teaching and behavior modification techniques to emphasize current and valid health information and promote lifestyle changes.
5. List the scientific principles of exercise and physical conditioning and identify safe, appropriate and enjoyable individualized exercise programs.
6. Demonstrate competence in reducing data collected before, during, and after the graded exercise test.
7. Demonstrate competence in delivering physical fitness activities.
8. Identify and implement appropriate emergency procedures.
9. Earn current certification in cardiopulmonary resuscitation,
10. Document a minimum of two months/300 hours of practical experience in a health and fitness program (co-op).

Competencies

Functional Anatomy and Biomechanics
Exercise Physiology
Human Development/Aging
Human Behavior/Psychology
Pathophysiology/Risk Factors
Health Appraisal and Fitness Testing
Emergency Procedures/Safety
Exercise Instruction and Programming
Nutrition and Weight Management
Co-op

Functional Anatomy and Biomechanics

General Competency and Rationale

Demonstrate an understanding of human functional anatomy and biomechanics. Anatomy and biomechanics consists of competencies expected of the Associate Degree Level Fitness For Health

Professional in the areas of human anatomy and biomechanical analysis of human movement and as related to exercise testing and fitness instruction. Mastery of these competencies will give the individual an understanding of human anatomy and movement analysis, and thus, a basis for exercise instruction and fitness evaluation under supervision.

Specific Competencies

1. Identify the basic structures of bone, skeletal muscle and connective tissues.
2. Identify the basic anatomy of the heart, cardiovascular system and respiratory system.
3. Identify the major bones and muscle groups involved in gross human movement.
4. List the actions of major muscle groups.
5. Identify the role of biomechanical factors in the development and prevention of injuries.
6. Define movement in frontal, sagittal and transverse planes for trunk and extremities.
7. List the types of joints in the body.
8. Identify the interrelationships among center of gravity, base of support, balance, and stability.
9. Identify common exercise movements and the major muscle groups involved in each.
10. Locate the appropriate sites for the limb and chest leads for resting and exercise ECGs.
11. Locate the brachial artery and describe the cuff and stethoscope positions for blood pressure measurement.
12. Locate anatomic landmarks for palpitation of peripheral pulses.
13. Locate common sites for measurement of skinfold thicknesses, widths and girths.
14. Locate the anatomic landmarks used during cardiopulmonary resuscitation and emergency procedures.

Exercise Physiology

General Competency and Rationale

Demonstrate a knowledge of basic exercise physiology. Exercise physiology consists of competencies expected of the Associate Degree Level Fitness For Health Professional in the area of human physiology. Mastery of these competencies will give individuals an understanding of human physiology related to acute and chronic exercise, and thus, a basis for determining the effect of exercise programs on their client population.

Specific Competencies

1. Identify the role of aerobic and anaerobic systems in the performance of various physical activities.
2. Identify the basic concepts in cardiopulmonary and muscle physiology related to exercise.
3. Identify the role of carbohydrates, fats, and protein as fuels for aerobic and anaerobic performance.
4. Identify the normal acute cardiorespiratory responses to an exercise bout in terms of heart rate, blood pressure and oxygen consumption.
5. List the cardiorespiratory responses associated with postural changes.
6. Identify how normal acute cardiopulmonary responses change with adaptation to chronic exercise training and how men and women may differ in response.
7. Identify the relationship of METS and kilocalories to various physical activities.
8. Identify the normal and abnormal heart rate and blood pressure responses to static and dynamic exercise.
9. Identify the common sites, describe how heart rate is determined by pulse palpation, and describe precautions in the application of these techniques.
10. Calculate predicted maximal heart rate and target heart rate range for various ages.
11. Identify the physiological principles related to warm-up and cool-down.
12. Identify the basic principles involved in muscular endurance and strength training.

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13. Identify the physiological principles related to muscular endurance and strength training: define overload, specificity of exercise conditioning, use-disuse, and progressive resistance.
14. List the physiologic adaptations associated with strength training.
15. Identify the common theories of muscle fatigue and delayed muscle soreness.
16. Identify the major components of physical fitness.
17. Identify the interrelationship of heart rate, exercise intensity and oxygen utilization.
18. Identify the effects of temperature, humidity, altitude and pollution on physical activity.
19. Identify the physical and physiological signs of over-exercise, over-training, overuse and de-training.
20. Identify how prescription drugs may affect physical activity.

Human Development/Aging

General Competency and Rationale

Demonstrate an understanding of the special problems of human development and aging. This competency emphasizes the need for the Associate Degree Level Fitness For Health Professional to understand the process of human development (life stages), the physical, psychological and social factors that influence growth, maturation and aging, life cycle stresses, concepts of coping and adjustment.

Specific Competencies

1. Identify the neuromuscular and cardiopulmonary changes that occur in maturation from childhood to older adulthood.
2. Identify adjustments to an exercise program that might be necessary to avoid problems associated with resistance and endurance training in youth and the elderly.
3. Identify psychological factors observed in youth and the elderly that may affect activity behavior.
4. Identify adjustments that might be necessary for testing younger and older participants.

Human Behavior/Psychology

General Competency and Rationale

Understand motivational techniques used to promote behavior change in the initiation, adherence or return to exercise and other healthy lifestyle behaviors. Integral for the effectiveness of the Associate Degree Level Fitness For Health Professional is the ability to interact with participants of various programs, understand and apply learning theories and psychological principles related to health behavior change, and be effective in the areas of motivation, communication and group dynamics. To successfully achieve these skills, the Fitness For Health Professional at this level needs to master the competency that focuses on Human Behavior/Psychology.

Specific Competencies

1. Identify several teaching techniques/strategies used in the conduct of group or individual exercise programs.
2. Identify several techniques to deal with disruptive individuals in the group programs.
3. List the psychological principles that are critical to health behavior change.
4. Identify learning theories as they relate to teaching exercise effectively in group or individual sessions.
5. Identify the personal communication skills necessary to develop rapport in order to motivate individuals to begin exercise, to enhance adherence and return to exercise.

6. List factors that increase anxiety in the exercise testing laboratory and describe how anxiety may be reduced in a participant.
7. List potential manifestations of test anxiety which can influence responses to an exercise test.

Pathophysiology/Risk Factors

General Competency and Rationale

Identify risk factors that may require consultation with medical or allied health professionals prior to participation in physical activity. A growing body of evidence indicates that a number of lifestyle related factors, acting singularly and in concert, contribute to the development of a widespread array of cardiovascular, respiratory, metabolic, and musculoskeletal diseases. It is generally held that early detection and control of these so-called risk factors can reduce associated morbidity and mortality.

Furthermore, without properly trained exercise professionals, the insidious progression of these disorders may go undetected, resulting in injury or death during physical exertion. Therefore, Pathophysiology/Risk Factor competencies ensure that the Associate Degree Level Fitness For Health Professional will be able to recognize risk markers for cardiovascular, respiratory, metabolic, and musculoskeletal disorders, as they relate to physical exertion, and discern physical conditions that require consultation with medical or allied health professionals prior to participation in physical exercise.

Specific Competencies

1. Identify risk factors for coronary heart disease and designate those that may be favorably modified by regular and appropriate physical activity habits.
2. List plasma cholesterol levels for various ages as recommended by the National Cholesterol Education Program.
3. Identify cardiovascular risk factors or contraindications that may require consultation with medical or allied health professionals prior to participation in physical activity or prior to a major increase in physical activity intensities and habits.
4. Identify respiratory risk factors that may require consultation with medical professionals prior to participation in physical activity or prior to major increases in physical activity intensities and habits.
5. Identify metabolic risk factors that may require consultation with medical professionals prior to participation in physical activity or prior to major increases in physical activity intensities and habits.
6. Identify musculoskeletal risk factors that may require consultation with medical professionals and allied health professionals prior to physical activity or prior to major increases in physical activity intensities and habits.
7. List the methods that are used to measure ischemic responses.
8. List the effects of ischemic heart diseases (including myocardial infarction) upon performance and safety during an exercise test.
9. List major risk factors for ischemic heart diseases.
10. Identify normal blood pressure responses at rest, exercise, and recovery.
11. List special considerations necessary when testing participants with obesity, diabetes, renal disease, pulmonary disease, asthma, orthopedic problems, neurologic problems, hypertension or stroke.

Health Appraisal and Fitness Testing

General Competency and Rationale

Demonstrate and identify appropriate techniques for health appraisal and use of fitness evaluations. It is often necessary, and always prudent, to assess health status and exercise capacity

prior to initiating or significantly altering an individual exercise program. Indeed, the foundation for a safe and effective exercise prescription is the accurate determination of an individual's current state of health and physical fitness. The Health Appraisal and Fitness Testing competencies describe the knowledge and technical skills essential to the Associate Degree Level Fitness For Health Professional in evaluating current health status and reliably measure health related components of physical fitness.

Specific Competencies

1. Identify uses for health history appraisal forms.
2. Identify the risks of various exercise tests and the use of informed consent forms and medical clearances prior to exercise participation.
3. Identify the rationale for determining body composition.
4. Identify and demonstrate the types of various field and laboratory tests for assessment of cardiorespiratory fitness, evaluation of strength, and flexibility, and techniques used to determine body composition.
5. Identify the difference between maximal and submaximal cardiorespiratory exercise tests.
6. Demonstrate the ability to measure pulse rate and blood pressure accurately, both at rest and during exercise.
7. Identify appropriate criteria for stopping an individual from exercising.
8. Demonstrate the calibration of field and laboratory equipment.
9. Perform a routine medical history and vital signs screening prior to exercise testing, ensure informed consent is obtained, explain procedures and protocol for the exercise test, recognize the contraindications to an exercise test, and summarize and present the screening information.
10. Identify patients for whom physician supervision is required during exercise testing.
11. Recognize the significance of patient history and physical exam findings as they relate to exercise testing.
12. Perform routine tasks prior to exercise testing including: taking a standard 12-lead electrocardiogram on a participant in the supine, upright and post-hyperventilation conditions; accurately recording right and left arm blood pressure in different body positions; demonstrate the ability to instruct the test participant in the use of a rating of perceived exertion (RPE) scale and other appropriate subjective scales, such as dyspnea and angina scales.
13. Identify the techniques used to minimize ECG artifact and the value of single-lead and multiple electrocardiographic lead systems in exercise testing.
14. List exercise test protocols in terms of modes of exercise, starting levels, increments of work, length of stages, frequency of physiologic measures.
15. Identify the factors considered in the selection of an exercise test protocol.
16. Identify exercise testing procedures for pulmonary patients and cardiac patients in terms of exercise modality, protocol, physiological measurements, and expected outcomes.
17. Identify appropriate techniques for measurement of physiologic and subjective responses.
18. Identify technical factors that may indicate test termination.
19. Identify immediate post-exercise procedures and list various approaches to cool-down.
20. Record and organize test data for test interpreter.
21. Identify differences in test protocol and procedures when the exercise test involves radionuclide or thallium imaging procedures.
22. Demonstrate an ability to administer basic testing spirometric tests.

Emergency Procedures/Safety

General Competency and Rationale

Demonstrate competence in basic life support and implementation of first aid procedures that may be necessary during or after exercise. The safe exercise environment and exercise testing

laboratory are mandatory if participation is to be encouraged. A secure environment needs to be established and maintained, and appropriate emergency procedures must be implemented if an accident does occur. The Emergency Procedures/Safety competencies describe the knowledge and skills expected of the Associate Degree Level Fitness For Health Professional in ensuring the safe exercise environment and implementing appropriate basic life support and first aid procedures when necessary.

Specific Competencies

1. Possess current cardiopulmonary certification or equivalent credentials.
2. Identify the emergency procedures, first aid, and evacuation plans needed during exercise testing, fitness evaluations, and exercise sessions.
3. Identify basic first aid procedures.
4. Identify the risks associated with exercise participation.
5. List the reasons for not starting or terminating the exercise session.
6. List and describe the use of emergency equipment that should be present in an exercise testing laboratory.
7. Demonstrate competency in verifying operating status of and maintaining emergency equipment.

Exercise Instruction and Programming

General Competency and Rationale

Demonstrate an understanding of the concepts of exercise. A well-designed and skillfully instructed exercise program is needed to help participants engage in safe, enjoyable activities that will lead to the achievement of personal fitness and health-related goals. Exercise programs are designed with consideration of both individual and group needs and abilities. Sound instructional and motivational tools are inherent in the supervised exercise setting. High-risk activities must be identified and avoided. The knowledge and technical skills described by the Exercise Instruction and Programming competencies comprise the core competencies for the Associate Degree Level Fitness For Health Professional.

Specific Competencies

1. State the recommended intensity, duration, frequency, progression and type of physical activity necessary for development of cardiorespiratory fitness in an apparently healthy population.
2. Differentiate between the amount of exercise required for various health benefits and that required for fitness development.
3. Identify the differences in an exercise program designed to develop versus one designed to maintain levels of cardiorespiratory fitness.
4. Define the overload principle and describe how it relates to the exercise program.
5. List common exercise-induced orthopedic problems.
6. Define RPE and describe its relationship to metabolic responses to exercise and its role in exercise programming.
7. Identify methods of establishing appropriate exercise intensity and various methods for monitoring exercise intensity.
8. Identify the signs and symptoms of excessive effort, which would indicate a change in the intensity, duration or frequency of exercise.
9. Identify aerobic exercise routines, class procedures and appropriate modifications in exercise programs, which may be recommended by a physician for varied subject populations.
10. Identify common errors in body alignment and movement mechanics.
11. Identify exercises for improving flexibility, muscular strength and muscular endurance.

12. Identify the importance of flexibility and exercises for improving range of motion of all major joints.
13. Identify and demonstrate exercises for the improvement of muscular strength and muscular endurance using various strength training and calisthenic techniques.
14. Define common terms related to weight training.
15. Identify isometric, isotonic and isokinetic equipment.
16. List advantages and disadvantages of standard exercise equipment.
17. Identify the concerns and risks that may be associated with the use of exercises such as straight leg sit-ups, double leg raises, full squats, hurdlers' stretch, plough, back hyperextension, and standing straight leg toe touch.
18. Identify and demonstrate appropriate exercises used in warm-up and cool-down.
19. Identify the differences between interval, continuous and circuit training programs.
20. Identify the components of an exercise session and their proper sequence.
21. Identify signs and symptoms that indicate termination of exercise and need for physician consultation for special populations.
22. Describe an exercise regimen for a water exercise class.
23. Describe partner resistance exercise that can be employed in a class setting.
24. Identify techniques for accommodating various fitness levels within the same class.
25. Identify the differences between a high impact and a low impact aerobics class and describe which type of class is appropriate for various kinds of participants.

Nutrition and Weight Management

General Competency and Rationale

Demonstrate an understanding of the principles of weight management and nutrition. Due to the emphasis society currently places on weight management and the huge amount of misinformation regarding diet and nutrition, the competency that focuses on Nutrition and Weight Management should be viewed as essential. The Associate Degree Level Fitness For Health Professional will need these skills in order to competently function in a wide range of fitness for health employment areas.

Specific Competencies

1. Define terms common to weight management and nutrition.
2. List the relationships between body composition and health.
3. Identify the effects of diet alone, and exercise in combination with diet on body composition.
4. Identify functions of fat and water soluble vitamins and contrast their potential risk of toxicity with over-supplementation.
5. Discuss the appropriate use of nutritional supplements and ergogenic aids.
6. Identify the importance of and procedures for maintaining normal hydration at times of heavy sweating and identify appropriate beverages for fluid replacements during and after exercise.
7. Identify the dietary guidelines recommended by the U.S. Department of Health and Human Services.
8. Identify the basic four food groups and give examples of food items found in each.
9. List the effects of diet and exercise on the blood lipid profile.
10. Identify the myths and consequences associated with inappropriate weight loss methods.
11. List the number of kilocalories in one gram of fat, carbohydrate, protein, and alcohol.
12. List appropriate weekly weight loss goals.
13. Identify the various theories of weight control.
14. List the different support groups in the community that provide good nutrition and weight control advice and information.

Co-op

General Competency and Rationale

The student, the site supervisor, and the college supervisor will develop a contractual agreement that provides for specific learning experiences for the co-op. The student will obtain experience and expertise in instructional skills. The student will participate in at least two practical experiences:

1) Experience one shall be a minimum of 60 clock hours at community college sites.
2) Experience two shall be a minimum of 5 to 6 weeks (240 hours) at an off-campus site (co-op site).

Credentialing and Accreditation

The American College of Sports Medicine has a certification program that currently includes six professional certification levels which evolved in 1972. Certificates are available to all professionals within the preventive and rehabilitative tracks who meet the established prerequisites. There is no established certification program for the Fitness For Health Professional at the Associate Degree Level. The National Association for Sport and Physical Education is currently developing standards for preparing undergraduate students for careers in fitness. Accreditation is a process reserved for academic institutions. In Texas, accreditation is awarded by the Southern Association of Universities and Schools. A college proposing to establish an Associate Degree Level Fitness For Health Professional program must be accredited.

Careers and Career Markets

Most community college graduates in fitness for health will find employment in a variety of settings. One setting is commercial, which includes health and fitness clubs, resorts, camps, cruise ships and retreat centers. A second setting is the worksite, which includes corporations, academic institutions, government agencies (fire and police), turn-key companies, and the military. A third setting is hospitals and medical centers, which include employee fitness programs, cardiac rehabilitation, clinics, and corporate services such as screening activities. A fourth setting is the community which includes recreational centers and public health agencies.

Career Ladders

Career laddering for the Associate Degree Level Fitness For Health Professional is not well documented, but possible career tracks include: promotion within a corporation, agency, institution; baccalaureate level education entering a health-related profession such as physical therapy; or acquiring additional specialty training in areas such as management, exercise testing, and health promotion.

Fitness for Health Professional
Baccalaureate Degree Level

Description

The Baccalaureate Level Fitness For Health Professionals demonstrate the knowledge, skills and competence required to lead exercise and health-enhancement programs for apparently health individuals. A Fitness For Health Professional at this level must meet the following criteria:

1. Demonstration of an adequate knowledge of health-appraisal techniques, risk-factor identification, submaximal-exercise testing and evaluating physical performance to properly recommend an exercise program.
2. Documentation of a minimum of four months/600 hours of practical experience in a health and fitness program.
3. A demonstrated understanding of appropriate educational techniques, including motivation, counseling, teaching and behavior modification, to promote lifestyle changes.
4. A knowledge of basic exercise science including exercise physiology, kinesiology, functional anatomy, nutrition, pathophysiology, electrocardiography, human behavior/psychology, gerontology, graded exercise testing, emergency procedures, and cardiorespiratory fitness.
5. A demonstrated ability to execute an accurate individualized prescription of activities for health and fitness programs.
6. A knowledge of management techniques and skills including organizational structure, organizational conflict and change, planning, coordination, decision-making, budget, and allocation of human resources.
7. Current certification in cardiopulmonary resuscitation.

Competencies

Functional Anatomy and Biomechanics
Exercise Physiology
Human Development/Aging
Human Behavior/Psychology
Pathophysiology/Risk Factors
Health Appraisal and Fitness Testing
Emergency Procedures/Safety
Exercise Instruction and Programming
Nutrition and Weight Management
Program Administration/Business Management
Electrocardiography
Legal and Ethical
Internship

Functional Anatomy and Biomechanics

General Competency and Rationale

Demonstrate an understanding of human functional anatomy and biomechanics. Anatomy and biomechanics consist of competencies describing the knowledge expected of the Baccalaureate Level Fitness For Health Professional in the areas of human anatomy and biomechanical analysis of human movement. Mastery of these competencies will give the individual an understanding of human anatomy and movement analysis, and thus, a basis for evaluating exercise programs.

Specific Competencies

1. Describe the basic structures of bone, skeletal muscle, and connective tissues.
2. Describe the basic anatomy of the heart, cardiovascular system and respiratory system.
3. Identify the major bones and muscle groups involved in gross human movement.
4. List and describe the actions of major muscle groups.
5. Demonstrate a knowledge of the role of biomechanical factors in the development and prevention of injuries.
6. Define movement in frontal, sagittal and transverse planes for trunk and extremities.
7. List and describe the types of joints in the body.
8. Describe the following abnormal curvatures of the spine: lordosis, scoliosis, and kyphosis, and their effects on movement.
9. Describe the biomechanical effects and potential risks of using hand/ankle weights.
10. Identify the interrelationships among center of gravity, base of support, balance, and stability.
11. Describe common exercise movements and identify the major muscle groups involved in each.
12. Describe the structure and nature of movement that occurs in diarthrodial joints.
13. Describe the factors which determine range of motion in diarthrodial joints.
14. Describe biomechanical principles that underlie performance of athletic and functional activities.
15. Describe and locate the common sites for measurement of skinfold thickness, skeletal diameters, girths for estimation of body composition and peripheral pulses.
16. Describe how muscular weakness and/or neurologic disorders affect the biomechanics of movement.

Exercise Physiology

General Competency and Rationale

Demonstrate a knowledge of basic exercise physiology. Exercise physiology consists of competencies describing the knowledge expected of the Baccalaureate Level Fitness For Health Professional in the area of human physiology. Mastery of these competencies will give the individual an understanding of human physiology related to acute and chronic exercise, and thus, a basis for evaluating the effect of exercise programs on their client population.

Specific Competencies

1. Describe the role of aerobic and anaerobic systems in the performance of various physical activities.
2. Demonstrate an understanding of basic concepts in cardiopulmonary and muscle physiology related to exercise.
3. Describe the role of carbohydrates, fats and proteins as fuels for aerobic and anaerobic performance.
4. Describe the normal acute cardiorespiratory responses to an exercise bout in terms of heart rate, blood pressure and oxygen consumption.
5. Describe how normal acute cardiopulmonary responses change with adaptation to chronic exercise training and how men and women may differ in response.
6. Define and describe the relationship of METS and kilocalories to various physical activities.
7. Describe the normal and abnormal heart rate and blood pressure responses to static and dynamic exercise.
8. Describe how heart rate is determined by pulse palpation, and describe precautions in the application of these techniques.
9. Calculate predicted maximal heart rate and target heart rate range for various ages.

10. Describe the physiological principles related to warm-up and cool-down.
11. Demonstrate an understanding of the basic principles involved in muscular endurance and strength training.
12. Describe the physiological principles related to muscular endurance and strength training.
13. Describe the physiologic adaptations associated with strength training.
14. Describe the common theories of muscle fatigue and delayed muscle soreness.
15. Define the major components of physical and motor fitness.
16. Describe the interrelationships of heart rate, exercise intensity and oxygen utilization.
17. Describe the effects of temperature, humidity, altitude and pollution upon the physiological response to exercise.
18. Describe the physical and physiological signs of over-exercise, over-training, overuse and de-training.
19. Identify the commonly prescribed drugs which may affect the ECG, heart rate, or blood pressure at rest or during exercises.
20. Describe the basic properties of cardiac muscle and the normal pathways of conduction in the heart.
21. Describe the difference in the cardiorespiratory responses to static exercise compared with dynamic exercise, including possible hazards of static exercise.
22. Describe how the principle of specificity relates to the components of fitness.
23. Describe the implications of ventilatory threshold ("anaerobic threshold") as it relates to physical conditioning programs and cardiovascular assessment.
24. Describe the concept of detraining or reversibility of conditioning and its implications in fitness programs.
25. Describe twitch, summation, and tetanus in terms of muscle contraction.
26. Describe the functional characteristics of fast and slow twitch fibers.
27. Describe hypotension and hypertension and explain why blood pressure should be monitored during exercise testing.
28. Describe the physiologic adaptations to muscle metabolism and the cardiorespiratory system that occur at rest, during submaximal and maximal exercise following chronic aerobic training.
29. Describe the response of the following variables to steady state submaximal exercise and to maximal exercise: heart rate, stroke volume, cardiac output, pulmonary ventilation, tidal volume, respiratory rate, arteriovenous oxygen difference, systolic, diastolic and mean blood pressure.
30. Describe the changes associated with chronic aerobic training for each of the variables: heart rate, stroke volume, cardiac output, pulmonary ventilation, tidal volume, respiratory rate, arteriovenous oxygen difference.
31. Describe the cardiorespiratory responses to acute graded exercise in conditioned and unconditioned subjects.
32. Describe the aerobic and anaerobic metabolic demands of various exercises for participants with cardiovascular, pulmonary and/or metabolic disease undergoing rehabilitation, and their implications.

Human Development/Aging

General Competency and Rationale

Demonstrate an understanding of the special problems of human development and aging. This competency emphasizes the need for the Baccalaureate Level Fitness For Health Professional to understand the process of human development (life stages), the physical, psychological and social factors that influence growth, maturation and aging, life cycle stresses, concepts of coping and adjustment.

Specific Competencies

1. Describe the neuromuscular and cardiopulmonary changes that occur in maturation from childhood to older adulthood.
2. Describe how an exercise program could be modified to avoid problems associated with resistance and endurance training in youth and the elderly.
3. Describe psychological factors observed in the youth and the elderly that may affect activity behavior.
4. Describe the differences in the development of an exercise prescription for children/youth, adults, and older participants.
5. Describe special leadership techniques for exercise training which might be used for children/youth and older participants.
6. Describe the adaptations to exercise training in children/youth and older participants with regards to strength, functional capacity, and coordination.
7. Describe common orthopedic and cardiovascular problems of older participants.
8. Describe adjustments that might be necessary for testing the younger and older participant, specifically, instructions for the patient and modification of the testing protocol and equipment.

Human Behavior/Psychology

General Competency and Rationale

Understand motivational techniques used to promote behavior change in the initiation, adherence or return to exercise and other healthy lifestyle behaviors. Integral to the effectiveness of the Baccalaureate Level Fitness For Health Professional is the ability to interact with participants of various programs, understand and apply learning theories and psychological principles related to health behavior change, and be effective in the areas of motivation, communication and group dynamics. To successfully achieve these skills, the Fitness For Health Professional at this level needs to master the competencies that focus on Human Behavior/Psychology.

Specific Competencies

1. Describe several teaching techniques/strategies used in the conduct of group or individual exercise programs.
2. Describe several techniques to deal with disruptive individuals in group programs.
3. Define the psychological principles that are critical to health behavior change.
4. Define and describe learning theories as they relate to teaching exercise effectively in group or individual sessions.
5. Describe the personal communication skills necessary to develop rapport in order to motivate individuals to begin exercise, to enhance adherence and return to exercise.
6. Describe the differential effects of exercise and progressive relaxation as stress management techniques for modifying anxiety, depression, anger and for generating relaxation.
7. Recognize the psychological issues to be confronted by the patients (and their family members) who have cardiovascular disease, and recognize when it is necessary for a psychological consult or referral to a professional resource available in the community.
8. Define the terms "lapse" and "relapse" and describe behavioral strategies to help individuals avoid these conditions.
9. Define negative and positive addiction in terms of exercise and health behavior.
10. Describe potential factors that increase anxiety during exercise testing and describe how anxiety may be reduced in a participant.
11. Describe potential physiological manifestations of test anxiety which may influence responses to an exercise test.

12. Describe the behavioral change strategies that are appropriate or inappropriate for modifying body composition.

Pathophysiology/Risk Factors

General Competency and Rationale

Describe risk factors that may require consultation with medical or allied health professionals prior to participation in physical activity. A growing body of evidence indicates that a number of lifestyle related factors, acting singularly and in concert, contribute to the development of a widespread array of cardiovascular, respiratory, metabolic, and musculoskeletal diseases. It is generally held that early detection and control of these so-called risk factors can reduce associated morbidity and mortality. Furthermore, without properly trained exercise professionals, the insidious progression of these disorders may go undetected resulting in injury or death during physical exertion. Therefore, Pathophysiology/Risk Factor competencies ensure that the Baccalaureate Level Fitness For Health Professional will be able to recognize risk markers for cardiovascular, respiratory, metabolic, and musculoskeletal disorders as they relate to physical exertion; and discern physical conditions that require consultation with medical or allied health professionals prior to participation in physical exercise.

Specific Competencies

1. Describe risk factors for coronary heart disease and designate those that may be favorably modified by regular and appropriate physical activity habits and lifestyle.
2. Describe normal plasma cholesterol levels for various ages.
3. Identify cardiovascular risk factors or contraindications that may require consultation with medical or allied health professionals prior to participation in physical activity or prior to a major increase in physical activity.
4. Identify respiratory risk factors that may require consultation with medical professionals prior to participation in physical activity or prior to major increases in physical activity.
5. Identify metabolic risk factors that may require consultation with medical professionals prior to participation in physical activity or prior to major increases in physical activity.
6. Identify musculoskeletal risk factors that may require consultation with medical professionals and allied health professionals prior to physical activity or prior to major increases in physical activity.
7. Describe the atherosclerotic process.
8. Describe the various types of hypertension.
9. Describe the role of physical activity in the prevention of atherosclerosis and hypertension.
10. Describe the effect of regular physical activity on the lipoprotein profile and blood pressure.
11. Describe the implications, symptoms, and mechanisms of classical and vasospastic angina.
12. Describe the methods used to measure ischemic responses.
13. Describe the physiological responses of common cardiovascular drugs at rest and during exercise testing and training.
14. Describe the responses and possible complications of some clinical populations, such as asthmatic, arthritic, metabolic.
15. Describe the influence of exercise on weight reduction, hyperlipidemia and diabetes.

Health Appraisal and Fitness Testing

General Competency and Rationale

Demonstrate and describe appropriate techniques for health appraisal and use of fitness evaluations. It is often necessary, and always prudent, to assess health status and exercise capacity prior to initiating or significantly altering an individual exercise program. Indeed, the foundation for a safe and effective exercise prescription is the accurate determination of an individual's current state of health

and physical fitness. The Health Appraisal and Fitness Testing competencies describe the knowledge and technical skills essential to the Baccalaureate Level Fitness For Health Professional in evaluating current health status and reliability measure health related components of physical fitness.

Specific Competencies

1. Discuss various definitions of health and factors that effect these definitions.
2. Describe and demonstrate the use of health history appraisal to obtain information on past and present medical history.
3. Describe the risks of various exercise tests and the use of informed consent forms and medical clearances prior to exercise participation.
4. Describe and demonstrate the types of various field and laboratory tests for assessment of cardiorespiratory fitness, evaluation of strength, and flexibility, and techniques used to determine body composition.
5. Describe the difference between maximal and submaximal cardiorespiratory exercise tests.
6. Demonstrate the ability to measure pulse rate and blood pressure accurately both at rest and during exercise.
7. Describe appropriate criteria for stopping an individual from exercising.
8. Describe the calibration of field and laboratory equipment.
9. Describe the basic principles of exercise testing.
10. Describe the categories of participants who should receive medical clearance prior to administration of an exercise test or participation in an exercise program.
11. Describe relative and absolute contraindications to exercise testing or participation.
12. Describe what physiological measures are taken during and after cardiorespiratory fitness testing.
13. Demonstrate the ability to interpret results of fitness evaluations on apparently healthy individuals.
14. Describe modifications of testing procedures and protocols for children.
15. Describe appropriate endpoints for exercise testing for various populations.
16. Describe basic equipment and facility requirements for exercise testing.
17. Describe criteria for determining when physician supervision is required during exercise testing and training.
18. Describe the selection of the exercise test protocol in terms of modes of exercise, starting levels, increments of work, length of stages, frequency of physiologic measures.
19. Describe how age, weight, level of fitness and health status are considered in the selection of an exercise test protocol.
20. Describe appropriate techniques for measurement of oxygen consumption, cardiovascular parameters and RPE at appropriate intervals during an exercise test.

Emergency Procedures/Safety

General Competency and Rationale

Demonstrate competence in basic life support and implementation of first aid procedures which may be necessary during or after exercise. The safe exercise environment and exercise testing laboratory are mandatory if participation is to be encouraged. A secure environment needs to be established and maintained, and appropriate emergency procedures must be implemented if an accident does occur. The Emergency Procedures/Safety competencies describe the knowledge and skills expected of the Baccalaureate Degree Level Fitness For Health Professional in ensuring the safe exercise environment and implementing appropriate basic life support and first aid procedures when necessary.

Specific Competencies

1. Possess current cardiopulmonary certification or equivalent credentials.
2. Describe the emergency procedures, first aid, and evacuation plans needed during exercise testing, fitness evaluations, and exercise sessions.
3. Describe basic first aid procedures.
4. Describe the risks associated with exercise participation.
5. Describe the reasons for not starting or for terminating the exercise session.
6. Describe the difference between strain and sprain.
7. Describe the acute injury rules of RICE.
8. Discuss the different types of sports medicine professionals that participants should be referred to for various types of injuries.
9. Describe what first aid items are necessary in a health and fitness setting versus a testing laboratory.
10. Demonstrate the ability to evaluate the facility design for safety features.

Exercise Instruction and Programming

General Competency and Rationale

Demonstrate an understanding of the concepts of exercise. A well-designed and skillfully instructed exercise program is needed to help participants engage in safe, enjoyable activities that will lead to the achievement of personal fitness and health-related goals. Exercise programs are designed with consideration of both individual and group needs and abilities. Sound instructional and motivational tools are inherent in the supervised exercise setting. High-risk activities must be identified and avoided. The knowledge and technical skills described by the Exercise Instruction and Programming competencies comprise the core competencies for the Baccalaureate Degree Level Fitness For Health Professional.

Specific Competencies

1. Describe the recommended intensity, duration, frequency, progression and type of physical activity necessary for development of cardiorespiratory fitness in an apparently healthy population.
2. Demonstrate the ability to conduct physician prescribed programs for special populations.
3. Describe the amount of exercise required for various health benefits and that required for fitness development.
4. Describe the differences in an exercise program designed to develop versus one designed to maintain levels of cardiorespiratory fitness.
5. Describe the overload principle and how it relates to the exercise programming.
6. Identify and describe common exercise-induced orthopedic problems.
7. Define RPE and describe its relationship to metabolic responses to exercise and its role in exercise programming.
8. Describe various methods of establishing appropriate exercise intensity and various methods for monitoring exercise intensity.
9. Describe the signs and symptoms of excessive effort, which would indicate a change in the intensity, duration or frequency of exercise.
10. Describe aerobic exercise routines, class procedures and appropriate modifications in exercise programs, which may be recommended by a physician, for varied subject populations.
11. Describe common errors in body alignment and movement mechanics.
12. Describe how exercise can be used for improving flexibility, muscular strength and muscular endurance.

13. Describe the importance of flexibility and recommend proper exercises for improving range of motion of all major joints.
14. Describe how strength training and calisthenic techniques can be used for the improvement of muscular strength and muscular endurance.
15. Describe common terms related to weight training.
16. Describe advantages and disadvantages of standard exercise equipment.
17. Describe the concerns and risks that may be associated with the use of exercises such as straight leg sit-ups, double leg raises, full squats, hurdlers' stretch, plough, back hyperextension, and standing straight leg toe touch.
18. Describe appropriate class organization and exercise leadership.
19. Describe appropriate exercises used in warm-up and cool-down.
20. Describe the difference between interval, continuous, and circuit training programs.
21. Describe the components of an exercise session and their proper sequence.
22. Describe appropriate exercise class management and teaching techniques.
23. Describe signs and symptoms that indicate termination of exercise and the need for physician consultation for special populations.
24. Describe an exercise regimen for a water exercise class.
25. Describe partner resistance exercise that can be employed in a class setting.
26. Describe how to accommodate various fitness levels within the same class.
27. Identify the differences between a high impact and a low impact aerobics class and describe which type of class is appropriate for various kinds of participants.

Nutrition and Weight Management

General Competency and Rationale

Demonstrate an understanding of the principles of weight management and nutrition. Due to the emphasis society currently places on weight management and the huge amount of misinformation regarding diet and nutrition, the competency that focuses on Nutrition and Weight Management should be viewed as essential. The Baccalaureate Level Fitness For Health Professional will need these skills in order to competently function in a wide range of health for fitness employment areas.

Specific Competencies

1. Define terms common to weight management and nutrition.
2. Discuss the relationship between body composition and health.
3. Compare the effects of diet plus exercise, diet alone and exercise alone as methods for modifying body composition.
4. Describe how energy balance relates to weight control.
5. Describe the function of fat and water soluble vitamins and contrast their potential risk of toxicity with over-supplementation.
6. Discuss the appropriate use of nutritional supplements and ergogenic aids.
7. Describe the importance of and procedures for maintaining normal hydration at times of heavy sweating and describe appropriate beverages for fluid replacement during and after exercise.
8. Describe the dietary guidelines recommended by the U.S. Department of Health and Human Services.
9. Describe the effects of diet and exercise on the blood lipid profile.
10. Describe the myths and consequences associated with inappropriate weight loss methods.
11. Describe appropriate weekly weight loss goals.
12. Describe the various theories of weight control.
13. Describe how different support groups in the community provide good nutrition and weight control advice and information.
14. Discuss the ADA exchange lists and how they can be used in advising an individual.

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15. Describe the various group and individual techniques that can be used to provide proper weight management.
16. Describe the various survey instruments and their use in a weight management program.
17. Describe various maintenance strategies following weight loss.

Program Administration/Business Management

General Competency and Rationale

Health and fitness professionals need to understand their supportive role in administration and program management. These professionals need to develop skills in managing a health and fitness program, including such competencies as record keeping, marketing, writing proposals, establishing goals and objectives, establishing links with community resources, and knowledge of procedures to refer a client to a physician. These skills are necessary for the Baccalaureate Level Fitness For Health Professional to work in a variety of career markets.

Specific Competencies

1. Describe the documentation required when a client shows signs or symptoms of distress during an exercise session and the procedures by which a client should be referred to a physician.
2. Demonstrate ability to create and maintain records pertaining to participant exercise adherence, retention, and goal setting and discuss their use for participant management feedback.
3. Describe major health education programs that should be in a health promotion-fitness program.
4. Describe the community resources, materials and personnel that can be used in a health promotion-fitness program.
5. Describe program evaluation techniques.
6. Describe common barriers to participating in fitness programs.
7. Describe the environmental and organizational elements in health promotion-fitness programs.
8. Describe the basic steps for implementing a health and fitness program.
9. Describe the various marketing techniques used to start up and maintain a health and fitness program.
10. Describe how to establish accurate record keeping and file maintenance.
11. Demonstrate the ability to write a health project proposal that includes staffing, financial, and marketing strategies.
12. Describe the goals and objectives for health and fitness programs in different settings and the appropriate program mixes.
13. Describe registration strategies that can be used in health and fitness programs.

Electrocardiography

General Competency and Rationale

Demonstrate knowledge of normal and abnormal resting ECGs and be able to recognize select ECG abnormalities during exercise testing. Electrocardiography consists of competencies describing the knowledge essential to the Baccalaureate Level Fitness For Health Professional in conducting a resting and exercising EKG evaluation. Mastery of these competencies will give the individual an understanding of the principles of electrocardiography, and knowledge of the normal and abnormal EKG responses during exercise.

Specific Competencies

1. Describe the resting ECG by identifying important waves, segments, intervals, and axes which comprise the normal resting ECG.
2. Describe changes in the ST segment, the presence of abnormal T waves and significant Q waves as well as their importance in resting and exercise ECGs.
3. Define the ECG criteria for terminating an exercise test due to ischemic changes.
4. Describe normal and abnormal ECG patterns.
5. Identify the significance of ECG abnormalities in designation of the exercise prescription and in activity selection.
6. Describe ECG patterns with conduction defects and dysrhythmias.

Legal and Ethical

General Competency and Rationale

Demonstrate knowledge of concepts of legal liability and ethical issues that can impact upon the implementation of a health and fitness program. This competency defines the knowledge expected of the Baccalaureate Level Fitness For Health Professional in regard to the legal and ethical issues that relate to working with clients in various settings. Attention to issues of confidentiality, patient rights, professional accountability, quality care, informed consent, principles of medical ethics, and professional codes are essential in providing safe and responsible services.

Specific Competencies

1. Define negligence, omission and commission.
2. Describe how the potential for legal liability can be reduced in a health and fitness program.
3. Identify ethical issues in program management.

Internship

General Competency and Rationale

The student, the site supervisor, and the university supervisor will develop a contractual agreement that provides for specific learning experiences for the internship. The student will participate in at least two practical experiences:

1) Experience No. 1 shall be a minimum of 120 clock hours at university sites.
2) Experience No. 2 shall be a minimum of 10 to 12 weeks (480 hours) at an off-campus site.

Credentialing and Accreditation

The American College of Sports Medicine has a certification program that currently includes six professional certification levels which evolved in 1972. Certificates are available to all professionals within the preventive and rehabilitative tracks who meet the established prerequisites. There is no established certification program for the Fitness For Health Professional at the Baccalaureate level. The National Association for Sport and Physical Education is currently developing standards for preparing undergraduate students for careers in fitness.

Accreditation is a process reserved for academic institutions. In Texas, accreditation is awarded by the Southern Association of Universities and Schools. A university or college proposing to establish a Fitness For Health Professional Baccalaureate Program must be accredited.

Careers and Career Markets

Most graduates with a B.S. degree in Fitness For Health will find employment as specialists or coordinators in a variety of settings. One setting is commercial, which includes health and fitness clubs, resorts, camps, cruise ships and retreat centers. A second setting is the worksite, which includes corporations, academic institutions, government agencies (fire and police), turn-key companies, and the military. A third setting is hospitals and medical centers, which include employee fitness programs, cardiac rehabilitation, clinics, and corporate services such as screening activities. A fourth setting is the community, which includes recreational centers and public health agencies.

Career Ladders

The career ladder for the Baccalaureate Level Fitness For Health Professional is not well documented, but possible career tracks include: promotion within a corporation, agency, institution; graduate level education; entering a health related profession such as physical therapy; or acquiring additional specialty training in areas such as management, exercise testing, and health promotion.

Fitness for Health Professional
Master's Degree Level

The Master's Degree Level Fitness For Health Professional has the primary responsibilities of directing/administering health and fitness programs for apparently healthy and clinical populations. This level of training is directed toward professionals working in the fields of exercise physiology, physical medicine, medicine, nutrition, and other allied health fields.

A Master's Degree Level Fitness For Health Professional must meet the following criteria:

1. Recognized ability to organize and administer preventive exercise programs for healthy and clinical populations.
2. A minimum of six months of practical, recent, verifiable experience in a position working with a clinical exercise program or a program in which a portion of the patients have documented heart, pulmonary, or renal disease, or diabetes. (internship)
3. Current certification in cardiopulmonary resuscitation (CPR).

Competencies

Functional Anatomy and Biomechanics
Exercise Physiology
Human Development/Aging
Human Behavior/Psychology
Pathophysiology/Risk Factors
Health Appraisal and Fitness Testing
Emergency Procedures/Safety
Exercise Instruction and Programming
Nutrition and Weight Management
Program Administration/Business Management
Electrocardiography
Legal and Ethical
Internship

Functional Anatomy and Biomechanics

General Competency and Rationale

Demonstrate an understanding of human functional anatomy and biomechanics. Anatomy and biomechanics consists of competencies describing the knowledge expected of the Master's Degree Level Fitness For Health Professional in the areas of human anatomy and biomechanical analysis of human movement. Mastery of these competencies will give the individual an understanding of human anatomy and movement analysis, thus, a basis for directing exercise programs.

Specific Competencies

1. Explain the basic structures of bone, skeletal muscle, and connective tissues.
2. Explain the basic anatomy of the heart, cardiovascular system, and respiratory system.
3. Explain how muscle groups are involved in gross human movement.
4. Explain the actions of major muscle groups.
5. Explain the role of biomechanical factors in the development and prevention of injuries.
6. Explain the interrelationships among center of gravity, base of support, balance, and stability.
7. Explain common exercise movements and the major muscle groups involved in each.

8. Explain why specific sites are chosen for the limb and chest leads for resting and exercise ECGs.
9. Explain the use of cuff and stethoscope for blood pressure measurement.
10. Explain the use of anatomic landmarks for palpation of peripheral pulses and how the techniques may vary with cardiovascular pathologics.
11. Explain why common sites for measurement of skinfold thicknesses, widths and girths are used in the fitness setting and explain why the site selections would vary among ages, gender, and race.
12. Explain the relationships among biomechanical efficiency, oxygen cost of activity (economy), and performance of physical activity.
13. Explain the applications of Newton's Laws of Motion to human movement.
14. Explain common gait abnormalities.
15. Explain abnormal curvatures of the spine and their effects on the biomechanics of movement.
16. Explain how muscular weakness and/or neurologic disorders affect the biomechanics of movement.

Exercise Physiology

General Competency and Rationale

Demonstrate a knowledge of basic exercise physiology. Exercise physiology consists of competencies expected of the Master's Degree Level Fitness For Health Professional in the area of human physiology. Mastery of these competencies will give the individual an understanding of human physiology related to acute and chronic exercise, and, thus, a basis for directing exercise programs for their client population.

Specific Competencies

1. Explain the role of aerobic and anaerobic systems in the performance of various physical activities.
2. Explain the basic concepts in cardiopulmonary and muscle physiology related to exercise.
3. Explain the role of carbohydrates, fats, and proteins as fuels for aerobic and anaerobic performance.
4. Explain the normal acute cardiorespiratory responses to an exercise bout in terms of heart rate, blood pressure, and oxygen consumption.
5. Explain the cardiorespiratory responses associated with postural changes.
6. Explain physiological and clinical considerations in the selection of different modes of ergometry for testing and training.
7. Explain how normal acute cardiopulmonary responses change with adaptation to chronic exercise training and how men and women may differ in response.
8. Explain the relationship of METS and kilocalories to various physical activities.
9. Explain normal and abnormal heart rate and blood pressure responses to static and dynamic exercise.
10. Explain how heart rate is determined by pulse palpation and explain precautions in the application of these techniques.
11. Explain the various methods for predicting maximal heart rate and target heart rate range for various ages.
12. Explain the physiological principles related to warm-up and cool-down.
13. Explain the basic principles involved in muscular endurance and strength training.
14. Explain the physiological principles related to muscular endurance and strength training: overload, specificity of exercise conditioning, use-disuse, and progressive resistance.
15. Explain the physiologic adaptations associated with strength training.
16. Explain the common theories of muscle fatigue and delayed muscle soreness.
17. Explain the major components of physical fitness.

18. Explain the interrelationships of heart rate, exercise intensity, and oxygen utilization.
19. Explain the effects of temperature, humidity, altitude and pollution upon the physiological response to exercise.
20. Explain the physical and physiological signs of over-exercise, over-training, overuse, and de-training.
21. Explain how drugs may affect the ECG, heart rate, or blood pressure at rest or during exercises.
22. Explain the basic properties of cardiac muscle and the normal pathways of conduction in the heart.
23. Explain the difference in the cardiorespiratory responses to static exercise compared with dynamic exercise, including possible hazards of static exercise.
24. Explain how the principle of specificity relates to the components of fitness.
25. Explain the implications of ventilatory threshold ("anaerobic threshold") as it relates to physical conditioning programs and cardiovascular assessment.
26. Explain the concept of detraining or reversibility of conditioning and its implications in fitness programs.
27. Explain the physical and psychological signs of overtraining and provide recommendations to deal with these problems.
28. Explain twitch, summation, and tetanus in terms of muscle contraction.
29. Explain the functional characteristics of fast and slow twitch fibers.
30. Explain hypotension and hypertension and explain why blood pressure should be monitored during exercise testing.
31. Explain the physiologic adaptations to muscle, metabolism and the cardiorespiratory system that occur at rest, during submaximal and maximal exercise following chronic aerobic training.
32. Explain the acute response of skeletal muscle and cardiorespiratory system during steady state submaximal exercise and to maximal exercise.
33. Explain the cardiorespiratory responses to acute graded exercise in conditioned and unconditioned subjects.
34. Explain the aerobic and anaerobic metabolic demands of various exercises for participants with cardiovascular, pulmonary and or metabolic disease undergoing rehabilitation, and their implications.
35. Explain how each of the following varies for the healthy individual versus the patient with coronary heart disease: function of the myocardium, the generation of the action potential, repolarization, and major variants in pathways of electrical activation.

Human Development/Aging

General Competency and Rationale

Demonstrate an understanding of the special problems of human development and aging. This competency emphasizes the need for the Master's Degree Level Fitness For Health Professional to understand the process of human development (life stages), the physical, psychological and social factors that influence growth, maturation and aging, life cycle stresses, concepts, and coping and adjustment.

Specific Competencies

1. Explain the neuromuscular and cardiopulmonary changes that occur in maturation from childhood to older adulthood.
2. Explain how an exercise program could be modified to avoid orthopedic and cardiovascular problems associated with resistance and endurance training in youth and the elderly.
3. Explain psychological factors observed in the youth and the elderly that may affect activity behavior.
4. Explain adjustments which might be necessary for testing the younger and older participants.

5. Explain the unique adaptations to exercise training in children/youth and older participants with regard to strength, functional capacity, and coordination.
6. Explain special instructional techniques that might be used for children/youth and older participants.
7. Explain how a facility and equipment are adapted for different age groups.

Human Behavior/Psychology

General Competency and Rationale

Understand motivational techniques used to promote behavior change in the initiation, adherence or return to exercise and other healthy lifestyle behaviors. Integral to the effectiveness of the Master's Degree Level Fitness For Health Professional is the ability to interact with participants of various programs, understand and apply learning theories and psychological principles related to health behavior change, and be effective in the areas of motivation, communication and group dynamics. To successfully achieve these skills, the Fitness For Health Professional at this level needs to master the competency that focuses on Human Behavior/Psychology.

Specific Competencies

1. Explain several teaching techniques/strategies used in the conduct of group or individual exercise programs.
2. Explain several techniques to deal with disruptive individuals in the group programs.
3. Explain psychological principles that are critical to health behavior change.
4. Explain learning theories as they relate to teaching exercise effectively in group or individual sessions.
5. Explain the communication skills necessary to develop rapport in order to motivate individuals to begin exercise, to enhance adherence and return to exercise.
6. Explain how various factors can increase anxiety in the exercise testing laboratory and explain how anxiety may be reduced in a participant.
7. Explain potential manifestations of test anxiety and how they can influence responses to an exercise test.
8. Explain how community resources can be used for psychological support and behavior modification and outline an example of a referral system.
9. Explain the signs and symptoms of psychological disorder secondary to cardiopulmonary disorder and describe appropriate community referral sources.
10. Explain the differential effects of exercise and progressive relaxation as stress management techniques for modifying anxiety, depression, anger, and for generating relaxation.
11. Explain the psychological issues to be confronted by the patients (and their family members) who have cardiovascular disease, and explain when it is necessary for a psychological consult or referral to a professional resource in the community.
12. Explain the terms, "lapse" and "relapse," and describe behavioral strategies to help individuals avoid these conditions.
13. Explain negative and positive addiction in terms of exercise and health behavior.

Pathophysiology/Risk Factors

General Competency and Rationale

Explain how risk factors may require consultation with medical or allied health professionals prior to participation in physical activity. A growing body of evidence indicates that a number of lifestyle related factors, acting singularly and in concert, contribute to the development of an array of cardiovascular, respiratory, metabolic, and musculoskeletal diseases. It is generally held that early detection and control of risk factors can reduce morbidity and mortality. Furthermore, without properly

trained exercise professionals, the insidious progression of these disorders may go undetected, resulting in injury or death during physical exertion. Therefore, Pathophysiology/ Risk Factor competencies ensure that the Master's Degree Level Fitness For Health Professional will be able to recognize risk markers for cardiovascular, respiratory, metabolic, and musculoskeletal disorders as they relate to physical exertion, and discern physical conditions that require consultation with medical or allied health professionals prior to participation in physical exercise.

Specific Competencies

1. Explain why cardiovascular risk factors or contraindications may require consultation with medical or allied health professionals prior to participation in physical activity or prior to a major increase in physical activity.
2. Explain why respiratory risk factors may require consultation with medical professionals prior to participation in physical activity or prior to major increases in physical activity.
3. Explain why metabolic risk factors may require consultation with medical professionals prior to participation in physical activity or prior to major increases in physical activity.
4. Explain why musculoskeletal risk factors may require consultation with medical professionals and allied health professionals prior to physical activity or prior to major increases in physical activity.
5. Explain the methods that are used to measure ischemic responses.
6. Explain the effects of ischemic heart diseases (including myocardial infarction) upon performance and safety during an exercise test.
7. Explain the risk factor concept of coronary artery disease (CAD) and the influence of heredity and lifestyle on the development of CAD.
8. Explain the process of atherosclerosis, the factors involved in its genesis, and methods that may reverse the process.
9. Explain the causes of hypertension, obesity, hyperlipidemia, diabetes, chronic obstructive and restrictive pulmonary diseases, arthritis, and gout, and the effect on cardiorespiratory and metabolic function at rest and during exercise.
10. Explain the mechanisms by which exercise may contribute to preventing vascular and metabolic diseases.
11. Explain the use and value of the results of the graded exercise test and fitness evaluation for various populations.
12. Explain the changes in muscular, cardiorespiratory, and metabolic responses following a decrease in physical activity, bed rest, or casting of a limb, and the response to exercise training.
13. Explain the side effects of commonly prescribed cardiovascular drugs.
14. Discuss the organization of a risk factor screening program, explain procedures, staff training, feedback, and follow-up.
15. Explain why special considerations are necessary when testing participants with obesity, diabetes, renal disease, pulmonary disease, asthma, orthopedic problems, neurologic problems, hypertension, stroke.
16. Explain the diagnostic and prognostic value of the results of the graded exercise test for various populations.
17. Explain the diagnostic and prognostic value of the low level predischarge exercise test versus the symptom-limited test and the indications for use with CAD patients.

Health Appraisal and Fitness Testing

General Competency and Rationale

Demonstrate and identify appropriate techniques for health appraisal and use of fitness evaluations. It is often necessary, and always prudent, to assess health status and exercise capacity prior to initiating or significantly altering an individual exercise program. Indeed, the foundation for a safe

and effective exercise prescription is the accurate determination of an individual's current state of health and physical fitness. The Health Appraisal and Fitness Testing competencies describe the knowledge and technical skills essential to the Master's Degree Level Fitness For Health Professional in evaluating current health status and reliability measure health related components of physical fitness.

Specific Competencies

1. Explain the risks of various exercise tests and the use of informed consent forms and medical clearances prior to exercise participation.
2. Explain the rationale for determining body composition.
3. Explain and interpret the results of the various types of field and laboratory tests for assessment of cardiorespiratory fitness, evaluation of strength, and flexibility, and techniques used to determine body composition.
4. Explain the difference between maximal and submaximal cardiorespiratory exercise tests.
5. Explain the appropriate conditions for stopping an individual from exercising.
6. Perform a routine medical history and vital signs screening prior to exercise testing, ensure informed consent is obtained, explain procedures and protocol for the exercise test, recognize the contraindications to an exercise test, and summarize and present the screening information.
7. Explain why various patients require physician supervision during exercise testing.
8. Explain how exercise test protocols are modified in terms of modes of exercise, starting levels, increments of work, length of stages, frequency of physiologic measures.
9. Explain why age, weight, level of fitness and health status are considered in the selection of an exercise test protocol.
10. Explain why exercise testing procedures are modified for pulmonary patients and cardiac patients in terms of exercise modality, protocol, physiological measurements, and expected outcomes.
11. Explain why testing procedures are modified for children with clinical conditions.
12. Explain the rationale for exercise testing endpoints in various populations.
13. Explain immediate post-exercise procedures and the physiological changes during cool-down.

Emergency Procedures/Safety

General Competency and Rationale

Demonstrate competence in basic life support and implementation of first aid procedures which may be necessary during or after exercise. The safe exercise environment and exercise testing laboratory are mandatory if participation is to be encouraged. A secure environment needs to be established and maintained, and appropriate emergency procedures must be implemented if an accident does occur. The Emergency Procedures/Safety competencies describe the knowledge and skills expected of the Master's Degree Level Fitness For Health Professional in ensuring the safe exercise environment and implementing appropriate basic life support and first aid procedures when necessary.

Specific Competencies

1. Possess current cardiopulmonary certification or equivalent credentials.
2. Explain the emergency procedures, first aid, and evacuation plans needed during exercise testing, fitness evaluations, and exercise sessions.
3. Explain basic first aid procedures.
4. Explain the risks associated with exercise participation.
5. Explain the reasons for not starting or terminating the exercise session.
6. Explain the difference between strain and sprain.
7. Explain the acute injury rules of RICE.

8. Explain the different types of sports medicine professionals that participants should be referred to for various types of injuries.
9. Evaluate facility design for safety features.
10. Explain the risk of cardiovascular complications during exercise testing.
11. Explain the risk factors for musculoskeletal injury and cardiovascular complications resulting from exercise training and how such risks might be reduced.
12. Explain the content of an informed consent document and other issues related to legal liability.
13. Explain the individual responsibility and legal implications related to first aid and emergency care.
14. Explain the emergency response(s) to cardiac arrest, hypoglycemia, bronchospasm and sudden onset hypotension.
15. Explain what emergency drugs should be available during exercise testing and participation situations and describe the mechanisms of action.
16. Design and update emergency procedures for a preventive exercise program and an exercise testing facility.
17. Train staff in safety procedures, the epidemiology of risks of injury and cardiovascular complications, risk reduction techniques, and emergency techniques.

Exercise Instruction and Programming

General Competency and Rationale

Demonstrate an understanding of the concepts of exercise. A well-designed and skillfully instructed exercise program is needed to help participants engage in safe, enjoyable activities that will lead to the achievement of personal fitness and health-related goals. Exercise programs are designed with consideration of both individual and group needs and abilities. Sound instructional and motivational tools are inherent in the supervised exercise setting. High-risk activities must be identified and avoided. The knowledge and technical skills described by the Exercise Instruction and Programming competencies comprise the core competencies for the Master's Degree Level Fitness For Health Professional.

Specific Competencies

1. Explain the recommended intensity, duration, frequency, progression, and type of physical activity necessary for development of cardiorespiratory fitness in an apparently healthy population.
2. Explain the exercise prescription requirement for various health and fitness benefits.
3. Explain the differences in an exercise program designed to develop versus one designed to maintain levels of cardiorespiratory fitness.
4. Explain the overload principle and how it relates to the exercise programming.
5. Explain why some common exercise-induced orthopedic problems occur.
6. Explain the relationship of RPE to metabolic responses to exercise and its role in exercise programming.
7. Explain various methods of establishing appropriate exercise intensity and various methods for monitoring exercise intensity.
8. Explain the signs and symptoms of excessive effort which would indicate a change in the intensity, duration or frequency of exercise.
9. Explain common errors in body alignment and movement mechanics.
10. Explain how programs of exercise can be designed for improving flexibility, muscular strength and muscular endurance.
11. Explain the importance of flexibility and recommend proper exercises for improving range of motion of all major joints.

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12. Explain how exercise programs are used for the improvement of muscular strength and muscular endurance using various strength training and calisthenic techniques.
13. Explain the concerns and risks which may be associated with the use of exercises such as straight leg sit-ups, double leg raises, full squats, hurdlers' stretch, plough, back hyperextension, and standing straight leg toe touch.
14. Explain the difference between interval, continuous and circuit training techniques.
15. Recognize, analyze and critique appropriate exercise class management and teaching techniques.
16. Explain special precautions and modifications of exercise programming for participation at altitude, different ambient temperatures, humidities and environmental pollution.
17. Explain the types of exercise programs available in the community and how these programs are appropriate for various populations.
18. Prescribe appropriate exercise for apparently healthy and medically stable clients based on medical information and exercise test data including intensity, duration, frequency, progression, precautions and type of physical activity.
19. Modify a patient's physician-prescribed exercise program (type of physical activity, intensity, duration, progression) according to the current health status of the patient with metabolic, cardiovascular, and skeletal-muscular conditions.
20. Explain basic mechanisms of action of common cardiovascular and over-the-counter medications that may affect the exercise prescription.
21. Explain warm-up and cool-down phenomena with specific reference to angina and ischemic ECG changes, arrhythmias and blood pressure changes.
22. Explain the differences in the physiological responses to arm and leg exercises in cardiac patients.
23. Explain the appropriate use of static and dynamic exercise by cardiac patients.
24. Design a program of strength training for cardiac patients.
25. Explain possible adverse responses to exercise in various patient groups and what precautions may be taken to prevent them.
26. Explain contraindications to exercise as related to the current health status of the participant.
27. Explain characteristics which correlate or predict poor compliance to exercise programs.

Nutrition and Weight Management

General Competency and Rationale

Demonstrate an understanding of the principles of weight management and nutrition. Due to the emphasis society currently places on weight management and the huge amount of misinformation regarding diet and nutrition, the competency that focuses on Nutrition and Weight Management should be viewed as essential. The Master's Degree Level Fitness For Health Professional will need these skills in order to competently function in a wide range of fitness for health employment areas.

Specific Competencies

1. Explain the relationship between body composition and health.
2. Explain the effects of diet plus exercise, diet alone and exercise alone, as methods for modifying body composition.
3. Explain the concept of energy balance as it relates to weight control.
4. Explain functions of fat and water soluble vitamins and contrast their potential risk of toxicity with over-supplementation.
5. Explain the appropriate use of nutritional supplements and ergogenic aids.
6. Explain the importance of and procedures for maintaining normal hydration at times of heavy sweating and describe appropriate beverages for fluid replacements during and after exercise.

7. Explain how knowledge of an individual's overall health status and cardiac risk profile should be used in determining a recommended body weight.
8. Explain the limitations of the various methods for measurement of body composition.
9. Explain essential nutrients and the role of each.
10. Explain the contraindications to very low calorie diets and the proper role of medical supervision in caloric restriction programs of various levels.
11. Discuss food preparation and presentation strategies which would promote heart healthy nutrition.
12. Compare and discuss the commercially available weight management programs.
13. Explain the dietary guidelines recommended by the U.S. Department of Health and Human Services.
14. Explain the effects of diet and exercise on the blood lipid profile.
15. Explain the various theories of weight control.
16. Explain the various group and individual strategies that can be used to provide proper weight management.
17. Explain the use and reliability of various survey instruments in a weight management program.
18. Explain various maintenance strategies following weight loss.
19. Discuss guidelines for caloric intake for an individual desiring to lose or gain weight.

Program Administration/Business Management

General Competency and Rationale

Fitness for health professionals will need to understand their supportive role in administration and program management. These professionals need to develop skills in managing a health and fitness program, including such competencies as record keeping, marketing, writing proposals, establishing goals and objectives, establishing links with community resources, and knowledge of procedures to refer a client to a physician. These skills are necessary for the Master's Degree Level Fitness For Health Professional to work in a variety of career markets.

Specific Competencies

1. Explain the need to create and maintain records pertaining to participant exercise adherence, retention, and goal setting and discuss their use for participant management feedback.
2. Develop and explain major components of a health education program that should be included in a health promotion-fitness program.
3. Explain program evaluation techniques.
4. Explain the environmental and organizational elements in the management of health promotion-fitness programs.
5. Explain the various marketing techniques used to start up and maintain a health and fitness program.
6. Describe a management plan for the development of staff, materials for education, marketing, client records, billing, facilities management and financial planning.
7. Explain the components of a needs assessment/market analysis plan.
8. Describe a personnel management plan including job description development, recruiting, interviewing, hiring, training, evaluation, procedures for professional advancement and termination of an employee.
9. Explain strategies for managing interpersonal and personnel conflicts.
10. Explain the development, evaluation and revision of policies and procedures for program components.
11. Explain the management-by-objective decision-making approach.
12. Describe personnel time management techniques for effective operation of a program.
13. Explain public relations strategies used in health promotion administration.

14. Explain operating policies for preventive exercise programs including data analysis and reporting, reimbursement of service fees, confidentiality of records, relationships between program and referring physicians, continuing education of participants and family, legal liability, and accident or injury reporting.
15. Explain the steps in developing, evaluating, revising, and updating capital and operating budgets.
16. Explain steps in planning and designing a facility, and in selecting and purchasing equipment.

Electrocardiography

General Competency and Rationale

Demonstrate knowledge of normal and abnormal resting ECGs and be able to recognize select ECG abnormalities during exercise testing. Electrocardiography consists of competencies describing the knowledge essential to the Master's Degree Level Fitness For Health Professional in conducting a resting and exercising EKG evaluation. Mastery of these competencies will give the individual an understanding of the principles of electrocardiography, and knowledge of the normal and abnormal EKG responses during exercise.

Specific Competencies

1. Explain the electrophysiological events involved in the cyclic depolarization and repolarization of the heart.
2. Explain ECG changes which typically occur due to hyperventilation, electrolyte abnormalities and drug therapy.
3. Explain resting ECG changes associated with metabolic and cardiopulmonary diseases.
4. Explain possible causes of ischemic ECG changes and various cardiac dysrhythmias, and explain the significance of their occurrence during rest, exercise, and recovery.
5. Explain how potentially hazardous dysrhythmias or conduction defects may be observed on the ECG at rest and during exercise and recovery.
6. Explain what procedures would be followed in case of such dysrhythmia or conduction defect.
7. Explain the significance of important ECG abnormalities in designation of the exercise prescription and in activity selection.
8. Explain the indications and methods for ECG monitoring during exercise testing and during exercise sessions.
9. Explain the diagnostic and prognostic significance of ischemic ECG responses or arrhythmias at rest, during exercise or recovery.
10. Explain the causes and means of reducing false positive and false negative exercise ECG responses.
11. Explain the role of ECG exercise testing as it relates to radiographic techniques.

Legal and Ethical

General Competency and Rationale

Demonstrate knowledge of concepts of legal liability and ethical issues which can impact upon the implementation of a health and fitness program. This competency defines the knowledge expected of the Master's Degree Level Fitness For Health Professional of legal and ethical issues as they relate to supervising staff and clients in various settings. Issues of confidentiality, rights, professional accountability, quality care, informed consent, principles of medical ethics and professional codes are essential in providing safe and responsible services.

Specific Competencies

1. Explain negligence, omission, and commission.
2. Explain how the potential for legal liability can be reduced in a health and fitness program.
3. Discuss ethical issues in program management.

Internship

General Competency and Rationale

The student, the site supervisor, and university supervisor will develop a contractual agreement that provides for specific learning experiences for the internship. The student will participate in at least two practical experiences:

1) Experience one shall be a minimum of 12 weeks (or documented equivalency) at a university site.
2) Experience two shall be a minimum of 12 weeks (or documented equivalency) at an off-campus site.

Credentialing and Accreditation

The American College of Sports Medicine has a certification program that currently includes six professional certification levels which evolved in 1972. Certificates are available to all professionals within the preventive and rehabilitative tracks who meet the established prerequisites. There is no established certification program for the Master's Degree Level Fitness for Health Professional proposed here.

Accreditation is a process reserved for academic institutions. In Texas, accreditation is awarded by the Southern Association of Universities and Schools. A university proposing to establish a Master's Degree Level Fitness For Health Professional program must be accredited.

Careers and Career Markets

Most graduates with a post baccalaureate degree in fitness for health will find employment as educators/administrators/researchers in a variety of settings. One setting is the worksite, which includes corporations, government agencies, turn-key companies, and the military. A second setting is hospitals and medical centers, which include employee fitness programs, cardiac rehabilitation, clinics, and corporate services, such as screening activities. A third setting is academic institutions, which include community colleges and universities. A fourth setting is commercial, which includes health and fitness clubs and retreat centers.

Recommended Resources for Establishing Fitness for Health Programs

Resources	Associate Level	Baccalaureate Level	Master's Level
Core, Full-time Faculty (Exercise/Fitness Course work)			
Academic Professional Experience	One F.T.E. with Master's Degree. Fitness for Health Related; 3 years exp.	Two F.T.E., one with Doctoral Degree and one with Master's Degree Fitness for Health Related; 3 years exp.	Two F.T.E. with Doctoral Degrees, Fitness for Health Related; 3 years exp.
Appropriate Certification	ACSM Fitness for Health Instructor (recommended)	ACSM Fitness for Health Director (recommended)	ACSM Fitness for Health Director (recommended)
Teaching	70% of courses need to be taught by full-time faculty	80% of courses need to be taught by full-time faculty	90% of courses need to be taught by full-time faculty
Facilities			
Physical Activity Areas (Gym)	yes	yes	yes
Assessment Areas (treadmill, laboratory)	yes	yes	yes
Classroom Areas	yes	yes	yes
Computer Resources	yes	yes	yes
Research Laboratory	no	recommended	yes
Equipment			
Fitness Assessment	yes	yes	yes
Computers	yes	yes	yes
Physiological Research	no	recommended	yes
Fitness Training	yes	yes	yes
Maintenance and Operation Funds			
Equipment Maintenance	yes	yes	yes
Library Software	yes	yes	yes
Professional Development for Faculty	yes	yes	yes
Core Courses in Exercise/Fitness			
Lecture Courses	yes	yes	yes
Laboratory Courses	yes	yes	yes
Research	no	recommended	yes
Internship	no	yes - campus 120 hrs., - off-site 480 hrs.	yes - campus 480 hrs., - off-site 480 hrs.
Co-op	yes - campus 60 hrs., - off-site 240 hrs.	no	no